

Work Order ID 160775

Wednesday, May 03, 2017 4:33:37 PM

160775

Page 1

Item ID: D3391-025 Accept ***N900040100*** Setup Start ***NS1***
 Revision ID: Stop ***NS2***
 Item Name: Aft Tube Assembly
 Start Date: 5/4/2017 Start Qty: 1.00 ***1*** Cust Item ID:
 Required Date: 5/16/2017 Req'd Qty: 1.00 ***1*** Customer:
 Reference: SCHEDULED/C

Approvals: Process Plan:  Date: MAY 03 2017 Tooling: Date: Run Start ***NR1***
 QC: Date: SPC (Y/N): Date: Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Draw Nbr	Revision Nbr
D3391	J

100	MORI SEIKI CNC LATHE LARGE	0.11				1	Ø		DAS 23 9-89
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100 Mori Seiki Memo 1.30

Mori Seiki CNC Lathe Large Turn as per Folio FA599 Rev: AA & Dwg D3391 Rev: I

ensure steady rest is turning true

REMOVE STEADY REST AND MACHINIG MARKS

110	QC2- Inspect parts off machine FAI/FAIB	0.00				1	Ø		DAS 23 9-89
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110 QC Memo 0.02

Quality Control

B#160775 x1

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date : _____	Step #: _____	QTY Effective : _____		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition			
				Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : ☐					

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Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
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Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____							
Misidentified ☐	Past Due ☐								

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Wednesday, May 03, 2017 4:33:37 PM

Item ID: D3391-025

Accept

N900040100Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: Aft Tube Assembly

Start Date: 5/4/2017 Start Qty: 1.00

1

Cust Item ID:

Required Date: 5/16/2017 Req'd Qty: 1.00

1

Customer:

Reference: SCHEDULED/C

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
140	QC8- Inspect parts - second check	0.00				1	0		DAS 45 9-89 2017-7-23
140									
QC	Memo	0.02							
Quality Control	***INSPECT INSIDE BORE***								
150	Skidtubes	0.00				1		17-08-02	DT.
150									
Skidtubes	Memo	0.33							
Skidtubes	1-Drill (PILOT HOLE) aft cap holes per Dwg D3391 using DT8803								
160	BENDING MACHINE - SKIDTUBES	0.31				1		17-08-09	DT. MGA.
160									
CNC Bend 1	Memo	0.53							
CNC Delta 100 Bender	Form as per Dwg D3391 Using Bend Prog 3391025								

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Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐																																																													
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Page 4

Wednesday, May 03, 2017 4:33:37 PM

Setup Start *NS1*

Révision ID:

Stop *NS2*

Cust Item ID:

Customer:

Reference: SCHEDULED/C

Run Start *NR1*

Stop ***NR2***

**Insp.
Stamp**

0.00

4.2

1

BE
1708-09

QC

0.02

Quality Control

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2012081		211		Completed By _____	
				Lead hand / Supervisor Approval Verification _____	
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Page 5

Item ID: D3391-025

Accept

N900040100Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: Aft Tube Assembly

Start Date: 5/4/2017 Start Qty: 1.00

1

Cust Item ID:

Required Date: 5/16/2017 Req'd Qty: 1.00

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Customer:

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Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

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180

0.00

180

Skidtubes

1.15

Skidtubes

Skidtubes

Memo

- ✓ 1-Open Aft cap pilot hole to .208" as per Dwg D3391
- ✓ 2-Drill float bag holes using DT8809 as per Dwg D3391(Holes marked "A" Only.
- ✓ 3-Drill wearplate holes as per Dwg D3391 using DT8878(Mid Tube) & DT8217 Wearplate Jig .
*****Do Not Open To Finished Size*****
- ✓ 4-Drill Wearshoe holes as per DWG D3391 using DT8939 locating from 2 previously drilled aft wearplate holes.
- ✓ 5- Use DT10247 and drill holes for nutplates and c'sink.
- ✓ 6- Detail DD, open (5) forward wearplate holes 0.375".
- ✓ 7-Open wearplate holes to 0.297" and c'bore as per dwg D3391.
- ✓ 8-Open up all float bag holes to 0.328" and c'sink as per Dwg D3391.
- ✓ 9-Deburr
- ✓ 9- Scribe batch # on fwd end

1 M66 17/08/10

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Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
190 *190* QC Quality Control	QC5- Inspect part completeness to step on W/O Memo	0.00 0.02				1			38 9-09 AUG 15 2017
200 *200* HandFinish Hand Finishing	Chemical Conversion Coat per QSI005 4.1 Memo	0.00 0.84				①	✓		2017-08-16 JSL DPE
210 *210* QC Quality Control	QC7-Inspect Chemical Conversion Coat Memo	0.00 0.02				JW			17-08-17

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Tribal Knowledge ☐	Rushing ☐																																																																								
LOA ☐	Product Improvement ☐																																																																								
Substation ☐	Process Improvement ☐																																																																								
Past Expiry Date ☐	Manufacturing Process ☐																																																																								
Misidentified ☐	Past Due ☐																																																																								
Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐																																																																						
Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐																																																																						
Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐																																																																						
Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐																																																																						
Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐																																																																						
Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐																																																																						
Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐																																																																						
Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐																																																																						
Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐																																																																						
Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐																																																																						
OTHER : _____																																																																									

Work Order ID 160775

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160775

Page 7

Item ID: D3391-025 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: Aft Tube Assembly
Start Date: 5/4/2017 Start Qty: 1.00 ***1*** Cust Item ID:
Required Date: 5/16/2017 Req'd Qty: 1.00 ***1*** Customer:
Reference: SCHEDULED/C

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
220	Skidtubes	0.00							
220		0.67				1	0	2017/08/21	AP
Skidtubes	Memo								
Skidtubes	1- Install nutplate using MS20601AD4W4 (qty12) in the six most forward holes and MS20601AD4W9 (qty8) in the four aft holes. Rivet nutplates as per section TT on sheet 11.								
	2- Instal spacers as per dwg D3391 A/R Magnabond 6398 Batch: <u>M236671</u> exp. date: <u>17-10-01</u> cure time 12hrs as per QSI0015	14:00							
	3- Grind crossbolts flush								
	4- Back drill using #9 drill								
	5- Touchup Magnabond								
	6- Deburr								
230	QC5- Inspect part completeness to step on W/O	0.00							
230		0.02							
QC	Memo								
Quality Control									

DAS
38
9-89
AUG 21 2017

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS <table style="width:100%; border: none;"> <tr> <td style="border: none;">Skid-tube ☐</td> <td style="border: none;">Cross tube ☐</td> <td style="border: none;">Water Jet ☐</td> <td style="border: none;">Engineering ☐</td> </tr> <tr> <td style="border: none;">Machining ☐</td> <td style="border: none;">Small Fab ☐</td> <td style="border: none;">Prod. Eng. Coord. ☐</td> <td style="border: none;">Quality ☐</td> </tr> <tr> <td style="border: none;">Thermoforming ☐</td> <td style="border: none;">Finishing ☐</td> <td style="border: none;">Rec/Store/Packaging ☐</td> <td style="border: none;">Other ☐</td> </tr> <tr> <td style="border: none;">Large Fab ☐</td> <td style="border: none;">Composite ☐</td> <td style="border: none;">Supplier ☐</td> <td></td> </tr> </table>						Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐	
Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐																						
Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐																						
Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐																						
Large Fab ☐	Composite ☐	Supplier ☐																							
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval																		
Description Work Order Deviation				Disposition				Completed By																	
								Lead hand / Supervisor Approval Verification																	
										QC / QA Coordinator Approval															
Root Cause		FAULT CATEGORY																							
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐																				
OTHER : ☐																									

160775

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N900040100

Setup Start *NS1*

Stop ***NS2***

Start Date: 5/4/2017 **Start Qty:** 1.00 ***1***

Cust Item ID:

Required Date: 5/16/2017 **Req'd Qty:** 1.00 ***1***

Customer:

Reference: SCHEDULED/C

Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____

Run Start *NR1*

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

Pressure Wash per QSI005 4.3

0.00

235

HandFinish

Hand Finishing

Memo

0.34

AND REALODINE AS PER PAR09-043

240

0.00

240

SprayPaint

Spray Painting

Memo

0.00

PRIME AS PER DWG AND QSI005 4.2.1.3.3

PRIMER BATCH: 137915

PAINT AS PER DWG AND QSI005 4.2.2.4

PAINT: 138058

250

QC14- Inspect Spray Paint

0.00

250

QC

Quality Control

Memo

0.02

2017-08-21

732

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~~AUG 24 2017~~

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Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____ **Run** **Start** ***NR1***
 QC: _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____ **Stop** ***NR2***

AUG 29 2017

160775

Wednesday, May 03, 2017 4:33:37 PM

N900040100

Setup Start *NS1*

Stop ***NS2***

Start Date: 5/4/2017 **Start Qty:** 1.00 ***1***

Required Date: 5/16/2017 Req'd Qty: 1.00 * 1 *

Reference: SCHEDULED/C

Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____

Run Start *NR1*

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

**Insp.
Stamp**

0.00

290

QC

Memo

0.10

Quality Control

AUG 29 2017

AUG 29 2017

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Picklist Print

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Page 1

Work Order ID: 160775

160775

Parent Item: D3391-025

D3391-025

Parent Item Name: Aft Tube Assembly

Start Date: 5/4/2017

Required Date: 5/16/2017

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP Rev B 06-02-07 ECN773 dwg rev. D EC
 IPP Rev:C 06-03-28 Update Manuf. Instructions JLM
 IPP rev D 07.03.20 revF dwg EC
 IPP rev E 07.11.07 rev G dwg ecn 1053p EC verified by: DD
 IPP Rev:F 07-11-13 ECN 1056 DD verified by: EC
 IPP Rev:G 08-09-10 revH as per dwg DD verified by:EC IPP Rev:H
 11.11.14 AS PER REV.I DD verified by:JLM

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	-------------	--------------	---------------	----------------	--------

D4095-047		Manufactured	No			260	Each	10.0000	1	1			
D4095-047									**			2017/08/24 BEB	
Wearpad Aft													

Location	Loc Qty	Loc Code
FP001	10	
154327	5	
156491	1	
158176	4	

D4095-049		Manufactured	No			260	Each	6.0000	1	1			
D4095-049									**			2017/08/24 BEB	
Wearpad Aft													

Location	Loc Qty	Loc Code
FP001	6	
150415	2	
158172	4	

MS20601-AD4W3		Purchased	No			260	Each	255.0000	12	12			
MS20601-AD4W3									**			17-08-17	
Rivet													

Location	Loc Qty	Loc Code
LG001	105	
m136182	56	
m137075	49	
ST308	150	
m137361	150	

Picklist Print

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Page 2

Work Order ID: 160775

160775

Parent Item: D3391-025

D3391-025

Parent Item Name: Aft Tube Assembly

Start Date: 5/4/2017

Required Date: 5/16/2017

Start Qty: 1.00

Required Qty: 1.00

MS20601-AD4W7

Purchased

No

260

Each

458.0000

8

8

MS20601-AD4W7

RIVET

**

JW 17-08-17

Location

Loc Qty

Loc Code

LG001

458

m135839

6

m137148

452

MS21075L5

Purchased

No

260

Each

250.0000

10

10

MS21075L5

Nut Plate

**

JW 17-08-17

Location

Loc Qty

Loc Code

GA

250

m137405

250

D6014-090

Manufactured

No

100

Each

24.0000

1

1

D6014-090

Aluminum Extrusion

**

Location

Loc Qty

Loc Code

LG003

24

139426

24

D3670-4-200

Manufactured

No

230

Each

93.0000

4

4

D3670-4-200

Bushing

**

17/5/8 DAS 23 9-89

17-08-17 DJ

Location

Loc Qty

Loc Code

FG

10

87709

10

LG001

83

138819

3

158395

32

159315

48

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Shop Packet Print

Page 2

Picklist Print

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Page 3

Work Order ID: 160775

160775

Parent Item: D3391-025

D3391-025

Parent Item Name: Aft Tube Assembly

Start Date: 5/4/2017

Required Date: 5/16/2017

Start Qty: 1.00

Required Qty: 1.00

D2646

Manufactured No

270

Each

21.0000

1

1

D2646

Aft Cap

2017/08/24 BEB

Location

Loc Qty

Loc Code

FG

*B159719

4

(X1)

85848

2

90495

2

FP001

17

136885

3

149748

1

154440

13

D3672-1

Manufactured No

270

Each

518.0000

2

2

D3672-1

Washer, Phenolic

2017/08/24 BEB.

Location

Loc Qty

Loc Code

FG

10

85222

10

FP001

508

134785

8

150074

500

(X2)

Picklist Print

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Page 4

Work Order ID: 160775

160775

Parent Item: D3391-025

D3391-025

Parent Item Name: Aft Tube Assembly

Start Date: 5/4/2017

Required Date: 5/16/2017

Start Qty: 1.00

Required Qty: 1.00

ALS4-1032-130 AELS4-1032-130 Purchased

No

260

Each

4,094.000

8

8

AI S4-1032-130

Rivnut

2017/08/24 BEB.

Location

Loc Qty

Loc Code

CCK007

2764

M136579

2764

FG

50

FG

M135442

50

FP001

709

M133077

3

M136579

706

st555

571

M136579

571

ALS4-1032-225 AELS8-1032-225 Purchased

No

270

Each

3,578.000

4

4

AI S4-1032-225

Rivnut

2017/08/24 BEB.

Location

Loc Qty

Loc Code

CCK007

500

M136579

500

FG

30

M134975

20

M135998

10

FP001

3048

M135603

40

M135920

38

M135998

2959

M136265

11

Picklist Print

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Page 5

Work Order ID: 160775

160775

Parent Item: D3391-025

D3391-025

Parent Item Name: Aft Tube Assembly

Start Date: 5/4/2017

Required Date: 5/16/2017

Start Qty: 1.00

Required Qty: 1.00

AN3C4A

Purchased

No

270

Each

1,135.000

6

6

AN3C4A

Bolt

2017/08/24 BFB

Location

Loc Qty

Loc Code

FG ***M137963** 20
122814 20
FP001 277
M136450 23
M136740 8
M136986 20
M137075 224
M137164 2
OVER002 700
M137361 700
ST350 138
M135704 138

(x6)

AN3C5A

Purchased

No

270

Each

1,462.000

4

4

AN3C5A

Bolt

2017/08/24 BFB

Location

Loc Qty

Loc Code

FG ***M137963** 5
122800 5
FP001 168
M136450 2
M136579 66
M137164 100
OVER002 1150
M136182 100
M137361 800
M137412 250
ST350 139
M134676 1
M135442 138

(x4)

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Shop Packet Print

Page 5

Picklist Print

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Page 6

Work Order ID: 160775

160775

Parent Item: D3391-025

D3391-025

Parent Item Name: Aft Tube Assembly

Start Date: 5/4/2017

Required Date: 5/16/2017

Start Qty: 1.00

Required Qty: 1.00

NAS1149C0332R

Purchased

No

270

Each

4,178.000

10

10

NAS1149C0332R

**

2017/08/24 BEB.

WASHER

Location	Loc Qty	Loc Code
FP001	86	(X10)
m136741	46	
m137178	40	
GA	518	
m133284	22	
m136444	496	
ST260a	3200	
m135408	0	
m135908	200	
m136741	0	
m137381	3000	
ST266	374	
m136643	374	

DART AEROSPACE LTD	Work Order:	160775
Description: Float Skidtube (412)	Part Number:	D3391-3
Inspection Dwg: D3391 Rev: J		Page 1 of 1

FIRST ARTICLE INSPECTION CHECKLIST

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
Lathe Section						
14.000	+/-0.010	14.000			tape	
3.500	+/-0.010	3.501				
Ø3.200	+/-0.010	3.190	✓		Vernier	
Ø3.750	+/-0.010	3.713	✓		Microcnc	
30° x 0.060 chamfer	+/-0.010	30° x 0.070	✓		Vernier	
88.93	+/-0.030	88.93	✓		tape	

Measured by: DAS 23 9-89	Date: 17/3/18
Audited by: MAY 30 2017	Date: 38 9-89

HAAS Section						
1.526	+0.000/-0.030	1.512	✓		CNC02	
7.500	+/-0.010	7.499			↓	
27.750	+/-0.010	27.750			tape	
31.750	+/-0.010	31.750			↓	
35.250	+/-0.010	35.250			↓	
3.300	+/-0.010	3.297			CNC02	
0.200	+/-0.010	.200			↓	
3.520	+/-0.010	3.524			↓	
0.687	+0.010/-0.000	.690			↓	
R0.062	+/-0.010	.062			↓	
Ø0.484	+0.005/-0.001	.486			↓	

Measured by: DAS 39 9-89	Date: 17-07-23
Audited by: DAS 45 9-89	Date: 2017-7-23

Rev	Date	Change	Revised by	Approved
A	06.04.24	New Issue P/O D3391-015/-025	KJ/JLM	
B	06.06.19	Dwg revision update	KJ/JLM	
C	07.04.20	Ø0.208 dimension removed	KJ/JLM	
D	07.09.06	0.400 dimension removed	KJ/JLM	
E	07.11.23	Dwg Rev. updated	KJ/EC/DD	
F	09.04.27	Dimensions updated per Rev H and NCR09-028	KJ/JLM	
G	09.11.16	Dimension 0.200 removed	KJ	
H	11.06.21	Dimension 44.995 removed	KJ	
I	12.05.15	Dwg Rev updated	KJ	
J	12.05.23	Dimension updated	KJ	
K	12.10.15	88.93 dimension removed	KJ	
L	12.11.28	88.93 dimension added	KJ	
M	16.06.23	Dimensions updated per Rev J	KJ	

D3391-041/-043 FLOAT SKIDTUBE ASSEMBLY PARTS LIST

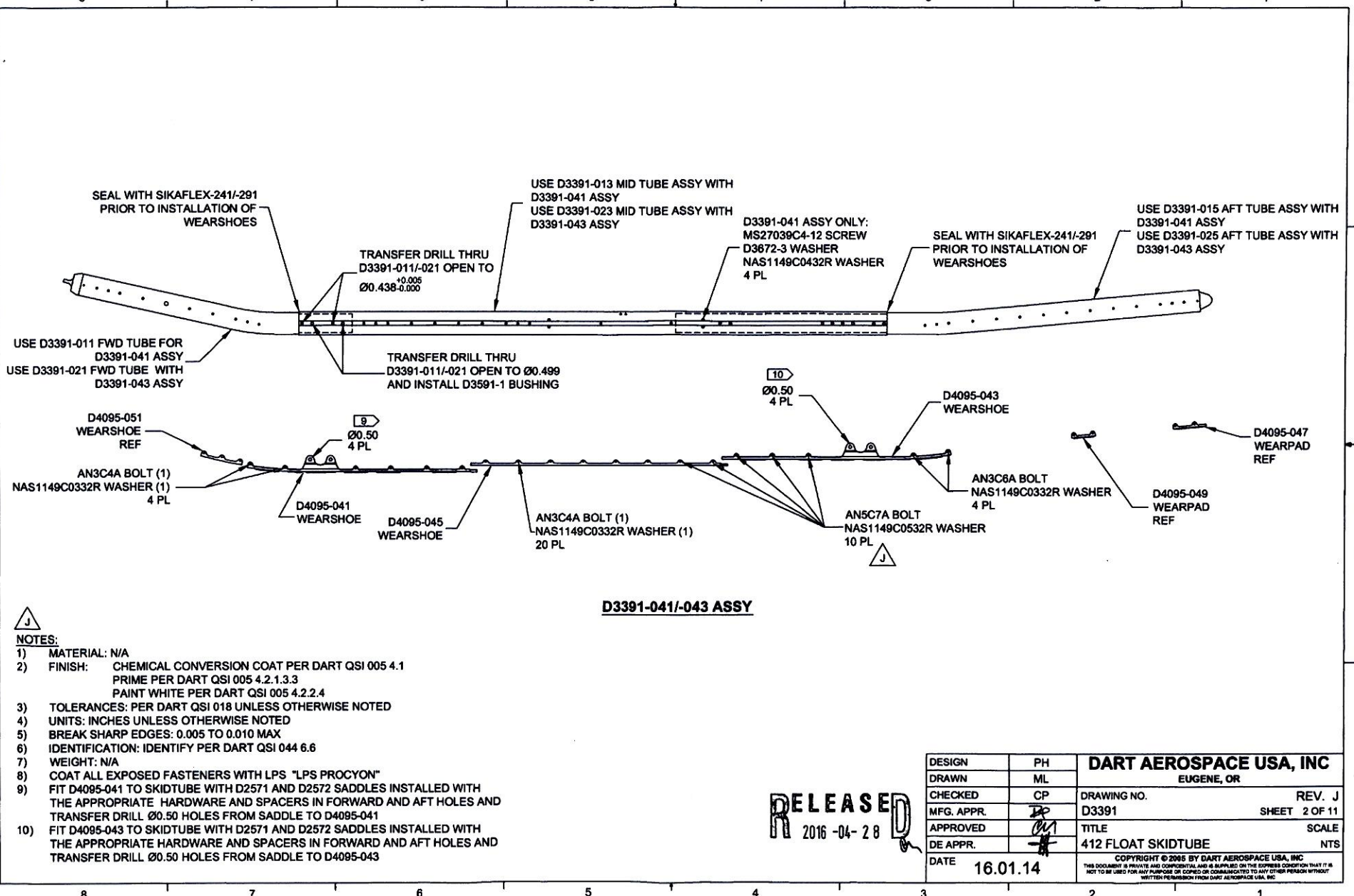
QTY -041	QTY -043	PART NUMBER	DESCRIPTION
X		D3391-041	FLOAT SKIDTUBE ASSEMBLY
	X	D3391-043	FLOAT SKIDTUBE ASSEMBLY
1		D3391-011	FWD TUBE ASSEMBLY
1		D3391-013	MID TUBE ASSEMBLY
1		D3391-015	AFT TUBE ASSEMBLY
	1	D3391-021	FWD TUBE ASSEMBLY
	1	D3391-023	MID TUBE ASSEMBLY
	1	D3391-025	AFT TUBE ASSEMBLY
2	2	D3591-1	BUSHING
4		D3672-3	WASHER
1	1	D4095-041	WEARSHOE
1	1	D4095-043	WEARSHOE
1	1	D4095-045	WEARSHOE
1	1	D4095-047	WEARPAD
1	1	D4095-049	WEARPAD
1	1	D4095-051	WEARSHOE
24	24	AN3C4A	BOLT
4	4	AN3C6A	BOLT
10	10	AN5C7A	BOLT
28	28	NAS1149C0332R	WASHER
10	10	NAS1149C0532R	WASHER
4		MS27039C4-12	SCREW
4		NAS1149C0432R	WASHER



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RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 160715
MAY 03 2017

J	INCORPORATED DSI 9733, REFORMAT DRAWING CHANGED CBORE DEPTH (ZN D2-8, D2-9), REVISED TABLES, REPLACED POWDER COAT WITH PAINT	ML	16.01.14
I	REMOVE GASKETS AND REPLACE ALL WEARSHOES; PARTS LIST UPDATE, ZN A8-1, ZN A8-2, ZN A6-4, ZN B6-8; LPS-3 COATING REMOVED FROM NOTE 2, ZN A3-1, ZN A3-2, REMOVED INSERT AELS-1032-130, ZN B6-4, B2-4, C7-8, C3-8; REMOVED HOLES, ZN D6-4 ZN D2-4, ZN D7-8, ZN D3-8	XDF	11.10.13
H	DRAWING UPDATED TO CURRENT STANDARDS. SHT 1 PL ADDED D3591-1 BUSHING. ZN C8 Ø0.438 DIM WAS 4 PL. ADDED Ø0.499 DIM AND D3591-1 BUSHING. SHT 2 PL ADDED D3591-1 BUSHING. ZN C8 Ø0.438 DIM WAS 4 PL. ADDED Ø0.499 DIM AND D3591-1 BUSHING. (FOR FURTHER INFO SEE DSI 9384 & NCR 08-074)	AJS	08.08.20
G	REPLACE NAS INSERTS W/ AELS INSERTS SWITCH TO D3670-XXXX SPACERS FOR INSTALLING FLOAT BAGS, DWG REORGANIZED FOR CLARITY	DC	07.07.31
F	ADD SS WEARSHOE, GASKET REMOVE FWD SADDLE HOLE -0111-021	PH	07.01.18
E	CHANGE TOLERANCE, EASE MANUFACTURE	PH	06.04.25
D	UPDATE TOLERANCE, CHANGE HOLE SIZE	PH	08.01.23
C	LENGTHEN AFT EXTENSION	PH	05.09.27
B	DRAWING UPDATES	PH	05.06.10
A	NEW ISSUE	PH	05.02.07
REV	DESCRIPTION	BY	DATE
DESIGN	PH	DART AEROSPACE USA, INC EUGENE, OR	
DRAWN	ML		
CHECKED	CP	DRAWING NO.	REV. J
MFG. APPR.	DP	D3391	SHEET 1 OF 1
APPROVED	PH	TITLE	SCALE
DE APPR.	PH	412 FLOAT SKIDTUBE	NTS
DATE	16.01.14	COPYRIGHT © 2005 BY DART AEROSPACE USA, INC THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.	

RELEASED
2016-04-28
ECN 16-516



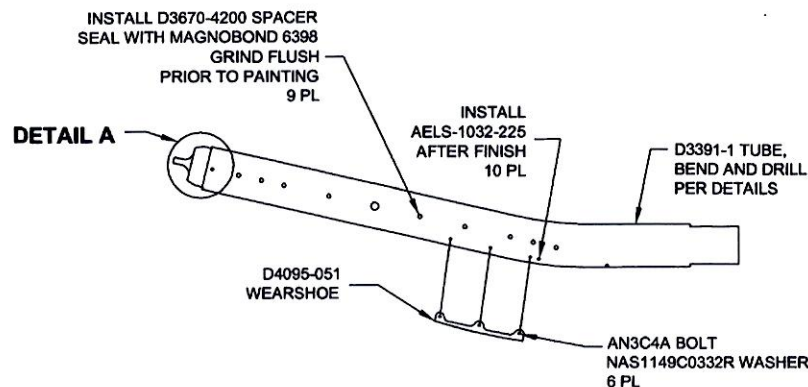
D3391-041/-043 ASSY

NOTES:

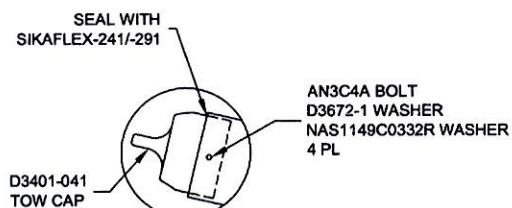
- 1) MATERIAL: N/A
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME PER DART QSI 005 4.2.1.3.3
PAINT WHITE PER DART QSI 005 4.2.2.4
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY PER DART QSI 044 6.6
- 7) WEIGHT: N/A
- 8) COAT ALL EXPOSED FASTENERS WITH LPS "LPS PROCYON"
- 9) FIT D4095-041 TO SKIDTUBE WITH D2571 AND D2572 SADDLES INSTALLED WITH THE APPROPRIATE HARDWARE AND SPACERS IN FORWARD AND AFT HOLES AND TRANSFER DRILL Ø0.50 HOLES FROM SADDLE TO D4095-041
- 10) FIT D4095-043 TO SKIDTUBE WITH D2571 AND D2572 SADDLES INSTALLED WITH THE APPROPRIATE HARDWARE AND SPACERS IN FORWARD AND AFT HOLES AND TRANSFER DRILL Ø0.50 HOLES FROM SADDLE TO D4095-043

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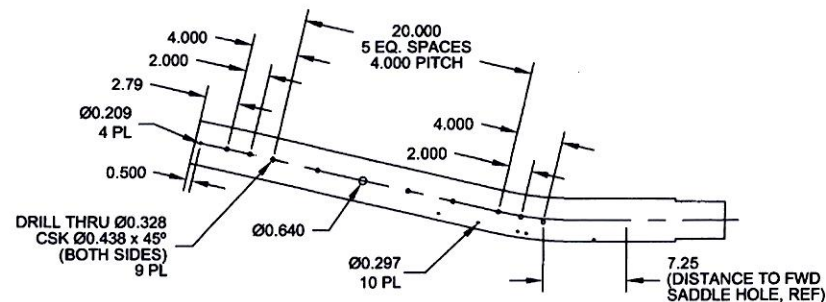
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MFG. APPR.	<i>[Signature]</i>	D3391	SHEET 2 OF 11
APPROVED	<i>[Signature]</i>	TITLE	SCALE
DE APPR.	<i>[Signature]</i>	412 FLOAT SKIDTUBE	NTS
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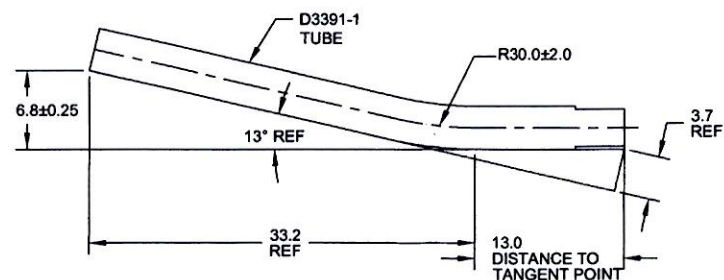
D3391-011 FWD TUBE ASSEMBLY
ASSEMBLY DETAIL



DETAIL A
SCALE 2X



D3391-011 DRILLING DETAIL



D3391-011 BENDING DETAIL
(MAKE FROM D3391-1)

D3391-011 FWD TUBE ASSEMBLY PARTS LIST

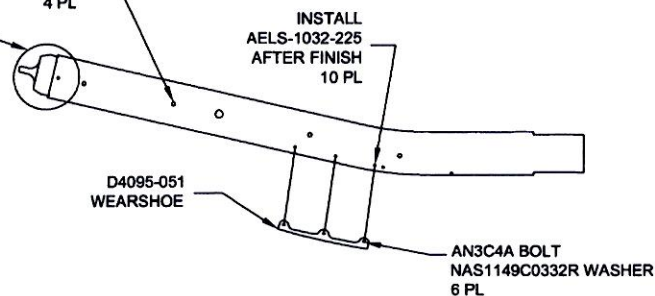
QTY -011	PART NUMBER	DESCRIPTION
X	D3391-011	FWD TUBE ASSEMBLY
1	D3391-1	TUBE
1	D3401-041	TOW CAP
9	D3670-4200	SPACER
4	D3672-1	WASHER
1	D4095-051	WEARSHOE
10	AELS-1032-225	INSERT
10	AN3C4A	BOLT
10	NAS1149C0332R	WASHER

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INSTALL D3670-4200 SPACER
SEAL WITH MAGNOBOND 6398
GRIND FLUSH
PRIOR TO PAINTING
4 PL

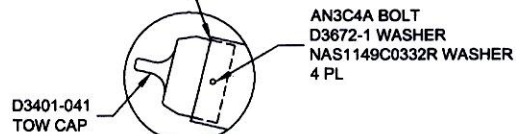
DETAIL B



D3391-021 FWD TUBE ASSEMBLY

ASSEMBLY DETAIL

SEAL WITH
SIKAFLEX-241/-291

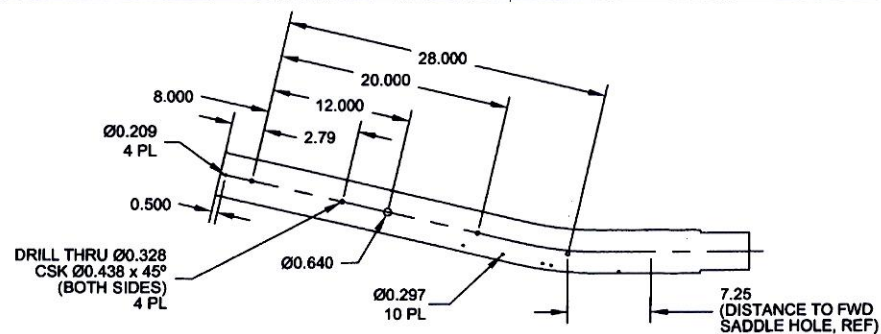


DETAIL B

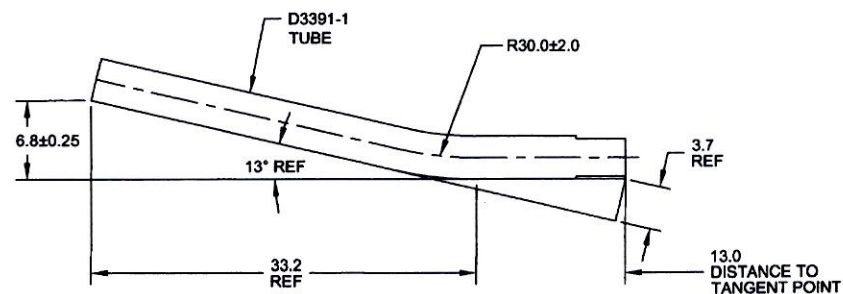
SCALE 2X

D3391-021 FWD TUBE ASSEMBLY PARTS LIST

QTY -021	PART NUMBER	DESCRIPTION
X	D3391-021	FWD TUBE ASSEMBLY
1	D3391-1	TUBE
1	D3401-041	TOW CAP
4	D3670-4200	SPACER
4	D3672-1	WASHER
1	D4095-051	WEARSHOE
10	AELS-1032-225	INSERT
10	AN3C4A	BOLT
10	NAS1149C0332R	WASHER



D3391-021 DRILLING DETAIL

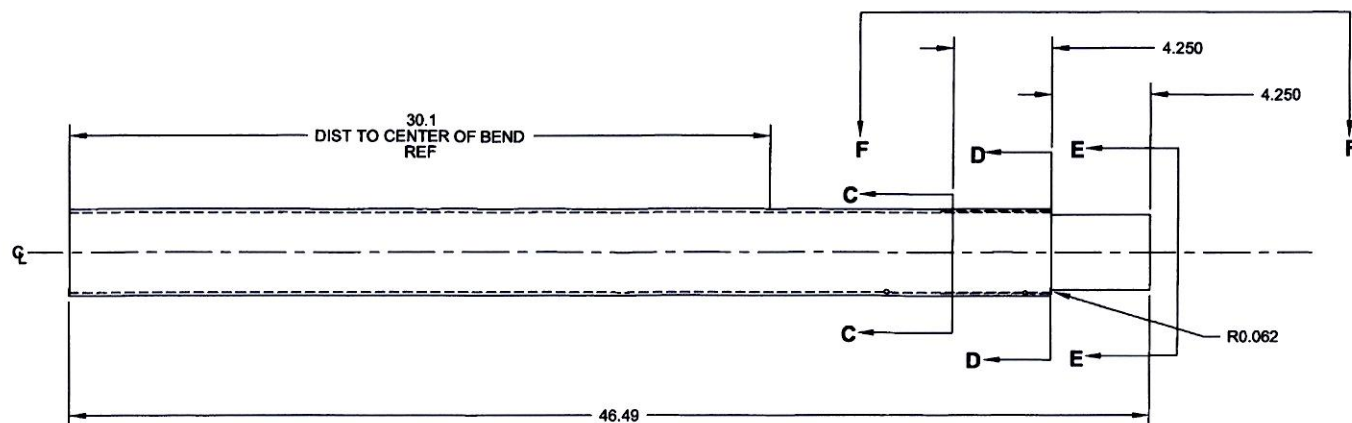


D3391-021 BENDING DETAIL

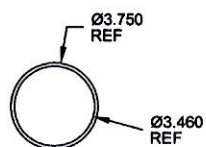
(MAKE FROM D3391-1)

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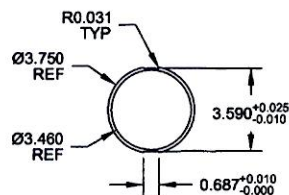
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MFG. APPR.	DR	D3391	SHEET 4 OF 1
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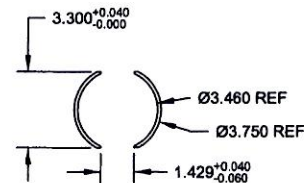
D3391-1 TUBE
(MAKE FROM D6013-047 SKIDTUBE MATERIAL)



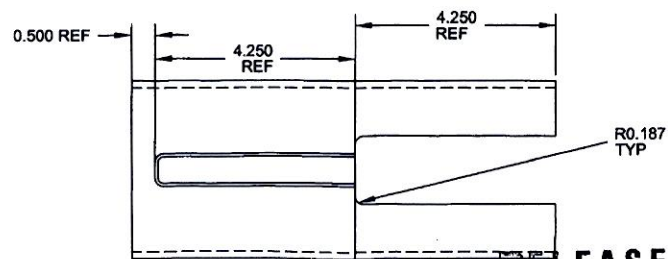
SECTION C-C



SECTION D-D



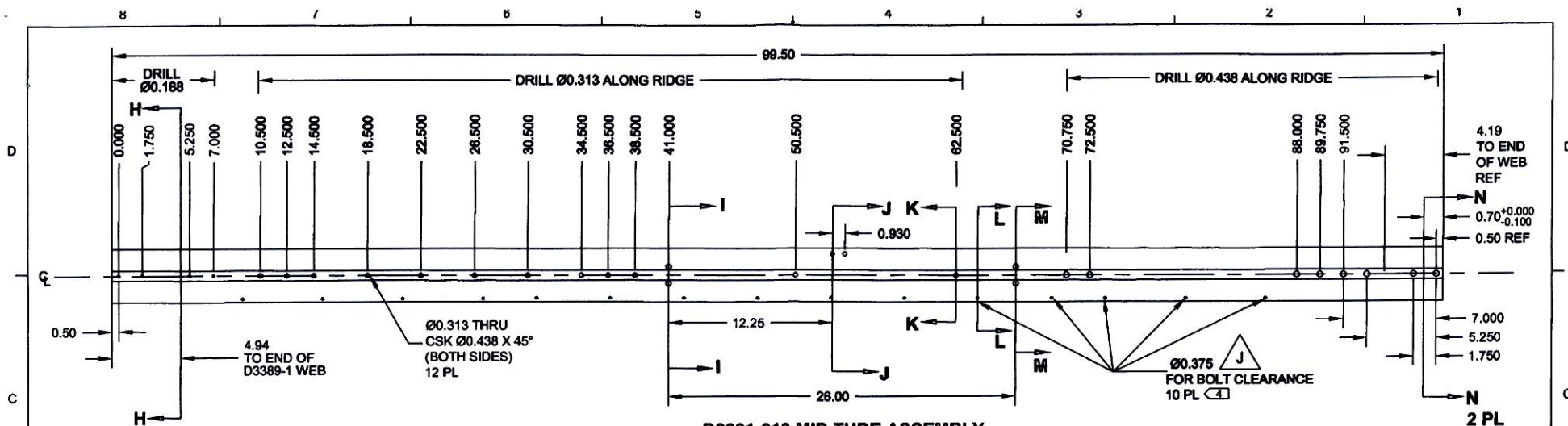
SECTION E-E



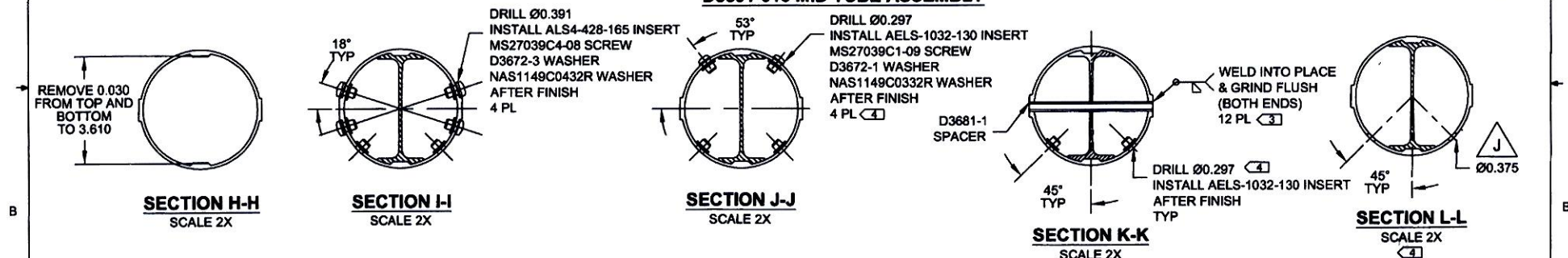
VIEW F-F
SCALE 2X

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D3391-013 MID TUBE ASSEMBLY



D3391-013 MID TUBE ASSEMBLY PARTS LIST

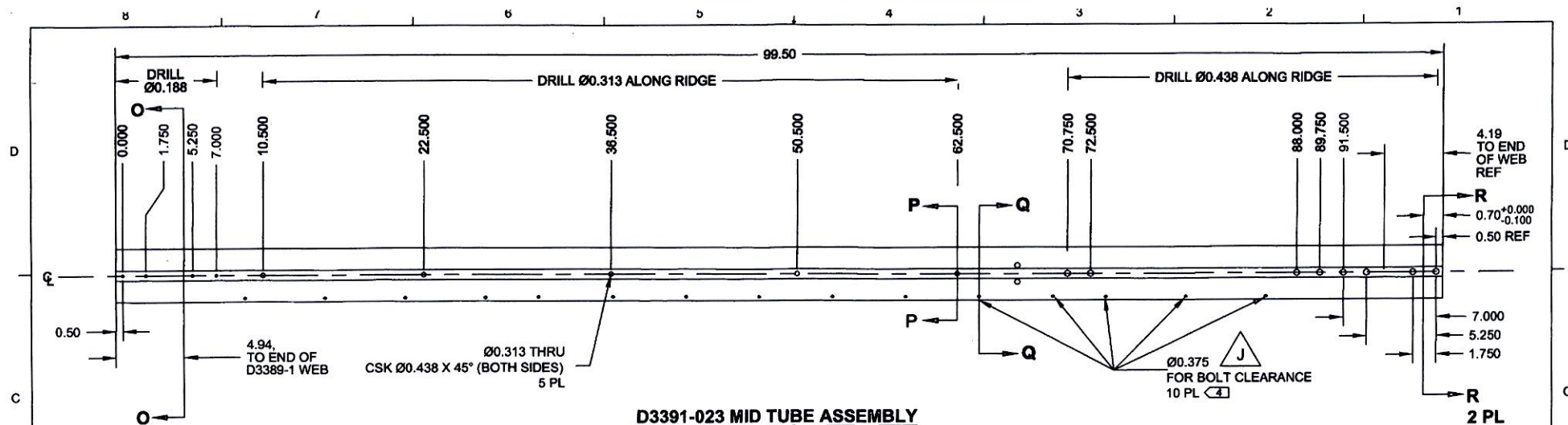
QTY	PART NUMBER	DESCRIPTION
X	D3391-013	MID TUBE ASSEMBLY
1	D2500-1-100	EXTRUSION
1	D3389-1	WEB
4	D3672-1	WASHER
4	D3672-3	WASHER
12	D3681-1	SPACER
24	AELS-1032-130	INSERT
4	ALS4-428-165	INSERT
4	MS27039C1-09	SCREW
4	MS27039C4-08	SCREW
4	NAS1149C0332R	WASHER
4	NAS1149C0432R	WASHER

D3391-013 MID TUBE ASSEMBLY

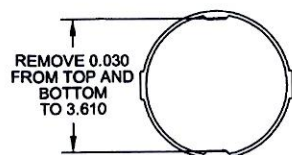
- MATERIAL: MAKE FROM D2500-1-100
- INSTALL D3389-1 WEB TO OUTER TUBE USING SIKAFLEX-241/291 PER QSI 015
- WELDING: PER DART QSI 004
- USE DART DRILL TEMPLATE DT8217 TO LOCATE AND DRILL Ø0.297 AND Ø0.375 HOLES FOR WEARSHOE INSERTS AND NUTPLATES. BORE AS NOTED AND INSTALL INSERT/NUTPLATES EXCEPT WHERE INDICATED.

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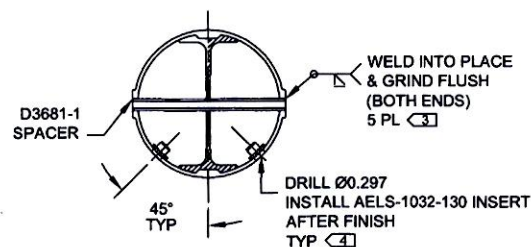
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2016-04-28



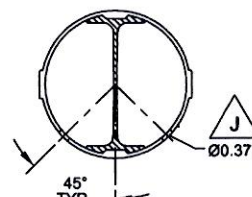
D3391-023 MID TUBE ASSEMBLY



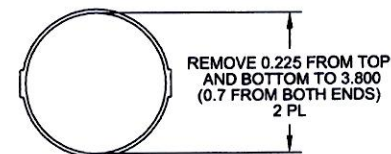
SECTION O-O
SCALE 2X



SECTION P-P
SCALE 2X



SECTION Q-Q
SCALE 2X



SECTION R-R
SCALE 2X

D3391-023 MID TUBE ASSEMBLY PARTS LIST

QTY	PART NUMBER	DESCRIPTION
-023		
X	D3391-023	MID TUBE ASSEMBLY
1	D2500-1-100	EXTRUSION
1	D3389-1	WEB
5	D3681-1	SPACER
20	AELS-1032-130	INSERT

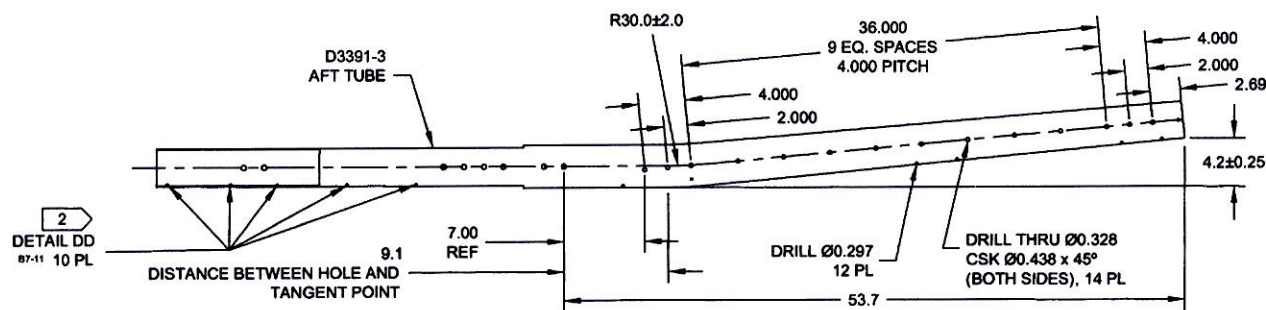
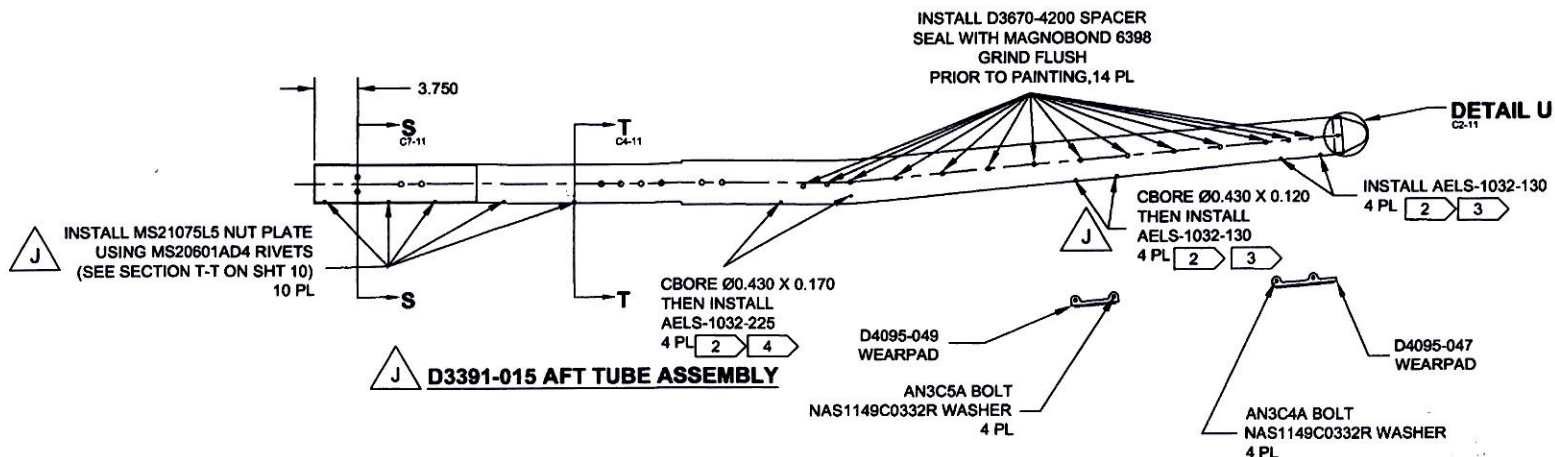


D3391-023 MID TUBE ASSEMBLY

- 1) MATERIAL: MAKE FROM D2500-1-100
- 2) INSTALL D3389-1 WEB TO OUTER TUBE USING SIKAFLEX-241/-291 PER QSI 015
- 3) WELDING: PER DART QSI 004
- 4) USE DART DRILL TEMPLATE DT8217 TO LOCATE AND DRILL 0.297 AND 0.375 HOLES FOR WEARSHOE INSERTS AND NUTPLATES. CBOR AS NOTED AND INSTALL INSERT/NUTPLATES EXCEPT WHERE INDICATED.

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D3391-015 AFT TUBE ASSEMBLY PARTS LIST

QTY	PART NUMBER	DESCRIPTION
X	D3391-015	AFT TUBE ASSEMBLY
1	D2646	AFT CAP
1	D3391-3	AFT TUBE
14	D3670-4200	SPACER
2	D3672-1	WASHER
1	D4095-049	WEARPAD
1	D4095-047	WEARPAD
8	AELS-1032-130	INSERT
4	AELS-1032-225	INSERT
4	ALS4-428-165	INSERT
6	AN3C4A	BOLT
4	AN3C5A	BOLT
20	MS20601AD4	RIVET, BLIND
10	MS21075L5	NUT PLATE, FLOATING
10	NAS1149C0332R	WASHER

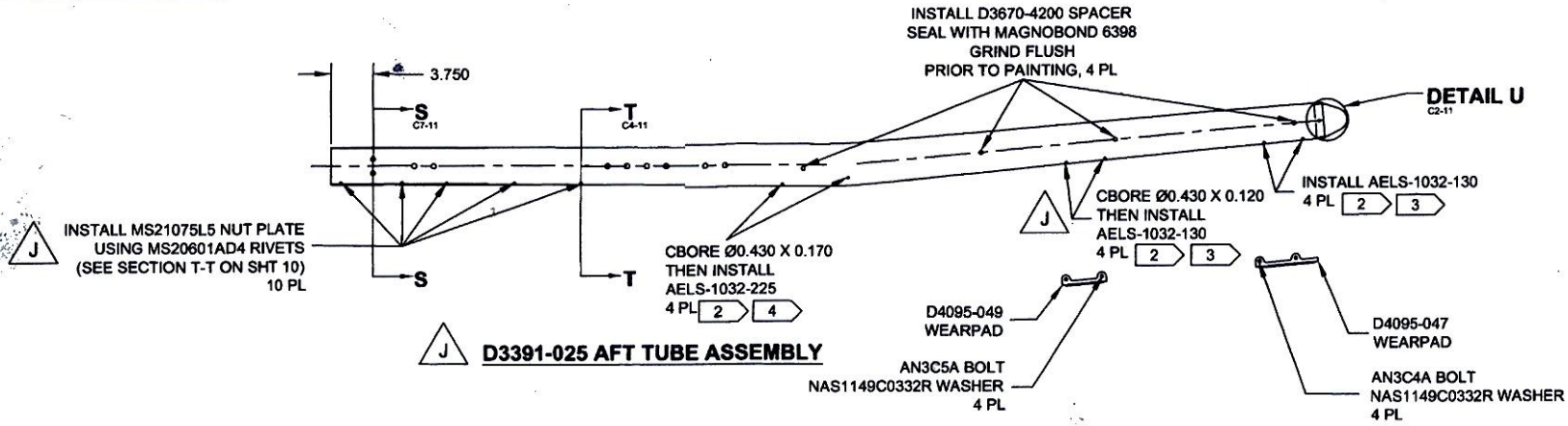
NOTES:

- 1) COAT ALL EXPOSED FASTENERS WITH LPS "LPS PROCYON"
- 2) USE DART DRILL TEMPLATE DT8217 TO LOCATE AND DRILL Ø0.297 AND Ø0.375 HOLES FOR WEARSHOE INSERTS AND NUTPLATES. CBORE AS NOTED AND INSTALL INSERT/NUTPLATES EXCEPT WHERE INDICATED.
- 3) ENSURE WALL THICKNESS IS BETWEEN 0.070 AND 0.130 BEFORE INSTALLING INSERT
- 4) ENSURE WALL THICKNESS IS BETWEEN 0.130 AND 0.225 BEFORE INSTALLING INSERT

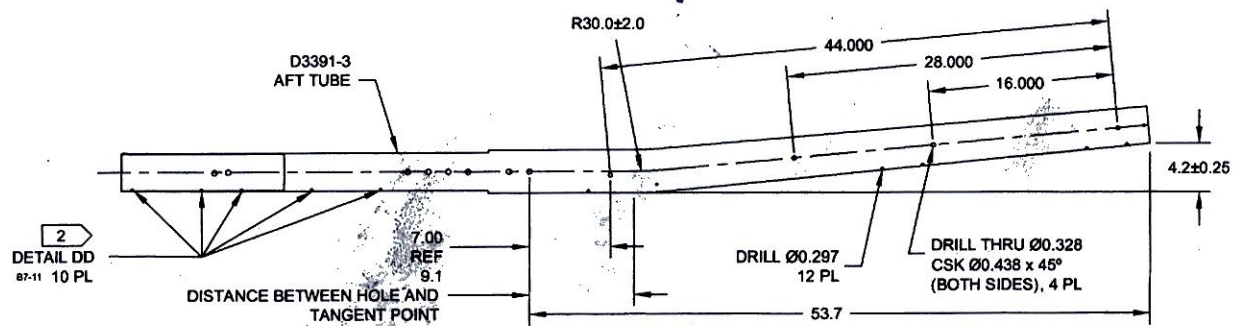
BENDING AND DRILLING DETAIL

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D3391-025 AFT TUBE ASSEMBLY



BENDING AND DRILLING DETAIL

D3391-025 AFT TUBE ASSEMBLY PARTS LIST

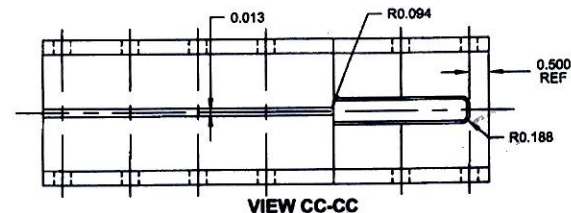
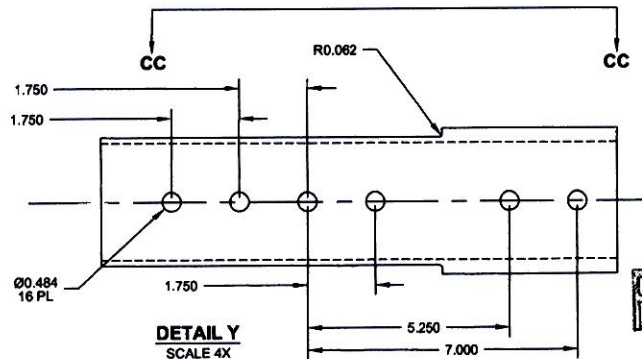
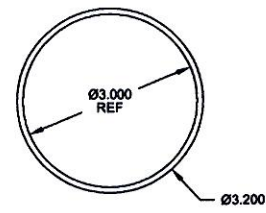
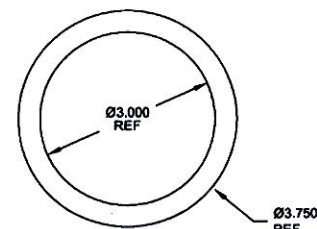
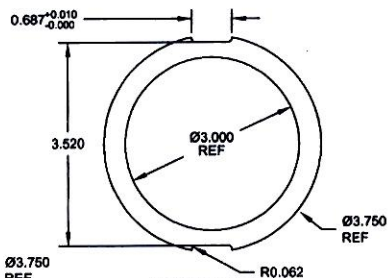
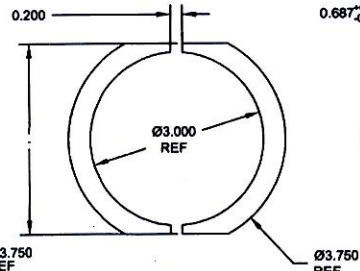
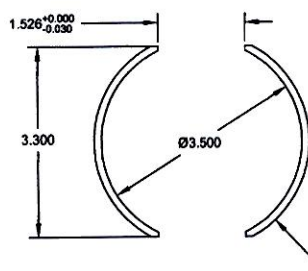
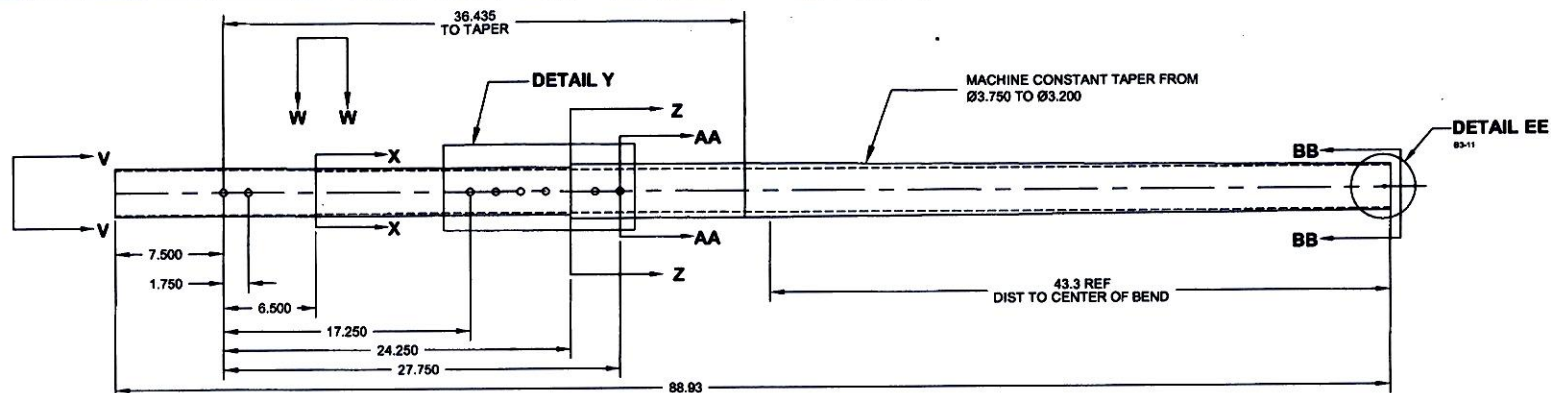
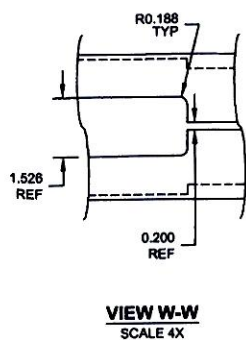
QTY	PART NUMBER	DESCRIPTION
X	D3391-025	AFT TUBE ASSEMBLY
1	D2646	AFT CAP
1	D3391-3	AFT TUBE
4	D3670-4200	SPACER
2	D3672-1	WASHER
1	D4095-049	WEARPAD
1	D4095-047	WEARPAD
8	AELS-1032-130	INSERT
4	AELS-1032-225	INSERT
6	AN3C4A	BOLT
4	AN3C5A	BOLT
20	MS20601AD4	RIVET, BLIND
10	MS21075L5	NUT PLATE FLOATING
10	NAS1149C0332R	WASHER

NOTES:

- 1) COAT ALL EXPOSED FASTENERS WITH LPS "LPS PROCYON"
- 2) USE DART DRILL TEMPLATE DT8217 TO LOCATE AND DRILL Ø0.297 AND Ø0.375 HOLES FOR WEARSHOE INSERTS AND NUTPLATES. CBORE AS NOTED AND INSTALL INSERT/NUTPLATES EXCEPT WHERE INDICATED. USE NUT PLATE DRILL JIG IF REQUIRED.
- 3) ENSURE WALL THICKNESS IS BETWEEN 0.070 AND 0.130 BEFORE INSTALLING INSERT
- 4) ENSURE WALL THICKNESS IS BETWEEN 0.130 AND 0.225 BEFORE INSTALLING INSERT

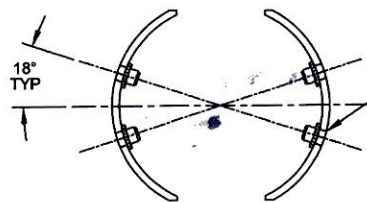
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DE APPR.		NTS	
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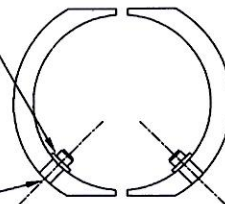


SECTION S-S
SCALE 5X

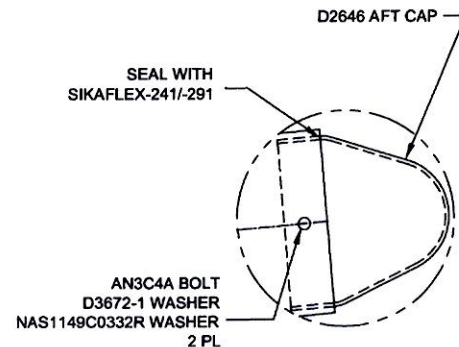
DRILL Ø0.391
CBORE Ø0.516 X 0.040 DEEP
INSTALL ALS4-428-165 INSERT
4 PL

USE DT8217 DRILL TEMPLATE
TO LOCATE HOLES AND OPEN
TO Ø0.375

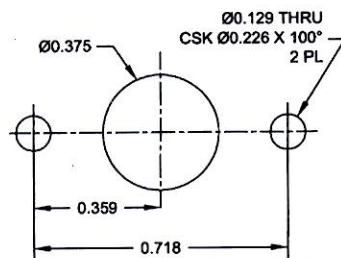
MS21075L5 NUTPLATE
REF



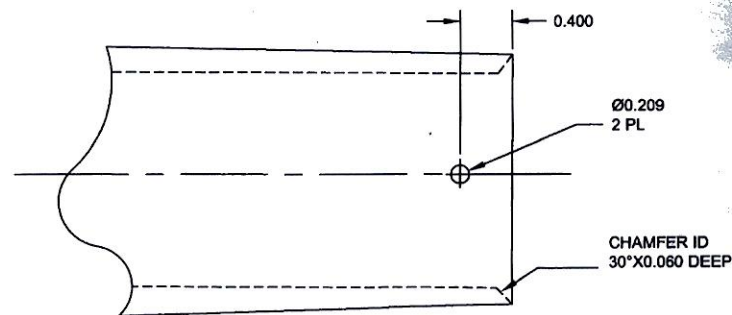
SECTION T-T
SCALE 5X
5 PL



DETAIL U
SCALE 5X



DRILLING DETAIL DD
SCALE 10X



DETAIL EE
SCALE 2X

NOTES:
1) USE INDUSTRY STANDARD NUT PLATE DRILL JIG IF REQUIRED.

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DE APPR.	SH	AFT TUBE ASSEMBLY	NTS
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